REMARKS

I. Status of the Application

Claims 1, 2, 5-12 and 21-36 are pending in this application. In the December 28 30, 2004 office action, the Examiner:

A. Rejected claim 1, 2, 5-7, 11, 12, 21, 22 and 26-36 under 35 U.S.C. § 102(b) as allegedly being anticipated by WO 00/54237 to Graviton, Inc. (hereinafter "Graviton"); and

B. Rejected claim 8-10 and 23-25 under 35 U.S.C. § 103(a) as allegedly being obvious over Graviton.

In this response, applicant respectfully traverses the rejections of claims 1, 2 and 5-12, 21-36 in view of the foregoing amendments and the following remarks.

II. The Rejection of Claim 1 is in Error

In the December 28, 2004 office action, the Examiner rejected claim 1 as allegedly being anticipated by Graviton. In response to a prior office action, claim 1 has been amended to include a limitation directed to the processing circuit being operable to generate a control output. Claim 1 stands rejected as allegedly being anticipated by Graviton. As discussed in the response to the June 30, 2005 office action, Graviton fails to teach or disclose each and every element of claim 1 as amended.

A. The Examiner's Response to Arguments

In the Response to Arguments section, the Examiner alleged that Graviton taught that actuator commands could be received via another sensor assembly. (December 28, 2004

office action at p. 2). This is correct to the extent that, at page 6, lines 21-24, Graviton states that the "actuator commands may be received via the network, e.g., the Internet, from the end user, a node, or another sensor assembly, or may be generated at the actuator assembly such as through a processor." This teaching is in the Summary of Invention, and not in the detailed description portion of application.

In the detailed description, when Graviton discloses at length the structure and operation of the sensor assembly 50 of page 15, and there is no mention of any ability to generate control outputs. It may be that Graviton *intended* to disclose and enable such a capability but could not reduce it to practice. Indeed, Graviton appears to teach several vague concepts in an inconsistent manner, such that it is not apparent what capabilities the elements have, much less how those capabilities are enabled.

Regardless, Graviton does not disclose a sensor assembly that includes a processor that is integrated with a MEMS sensor and generates a control output. Specifically, the particular sensor assembly 50 described at page 15 may be formed to have a processor integrated with a MEMS sensor, but does not include the capability of generating a control output. By contrast, the Summary of the Invention of Graviton implies a sensor assembly that is vaguely operable to generate a control output, but does not imply that such a sensor assembly has a processor and MEMS sensor integrated on the same substrate. Thus, neither embodiment of Graviton appears to include all of the elements of the claimed invention.

In particular, the fact that Graviton teaches in the Summary of the Invention that an actuator assembly is capable of receiving control outputs from a number of devices, including a sensor assembly, *does not* itself teach that the specific sensor assembly described at page 15

and illustrated in Fig. 4 *can* generate such control outputs. This distinction is particularly emphasized by the lack of any hint that the sensor assembly 50 has this capability.

Furthermore, even if Graviton could be construed as teaching generating control outputs at the sensor assembly, Graviton does *not* teach that such control outputs are generated based on *at least one set point and the process value obtained from the at least one MEMs sensor device*, as claimed in claim 1. Instead, Graviton only teaches that an actuator control signal may be received from, among other things, a sensor assembly. Graviton does not teach that a sensor assembly is operable to generate the control output from *both* a MEMS sensor signal *and* a set point value. Moreover, it is *not* inherent that the generation of a "control output", as that term is used in Graviton, would require both a sensor signal and a set point value.

Thus, Graviton fails to teach or disclose each and every element of claim 1. At best, Graviton alludes to various capabilities of different (and unspecified) devices, and certainly fails to disclose any sensor assembly that generates control outputs from *both* sensor signals and set point information. By contrast, Figs. 7a-7b, 8a-8b and 9a-9b of the present application show exemplary embodiments of sensor modules having processing circuits that generate control outputs from sensor values and set point values received from another entity.

It is therefore respectfully submitted that the anticipation rejection of claim 1 is in error and should be withdrawn.

III. Claims 2, 3 and 5-12

Claims 2, 3 and 5-12 all stand rejected as anticipated by or obvious over Graviton. Claims 2, 3 and 5-12 all depend from and incorporate all of the limitations of claim 1. As

discussed above, Graviton fails to teach or suggest a processing circuit that is integrated with a MEMS sensor and generates a control output based on set point information and sensor values. Accordingly, for at least the same reasons as those discussed above in connection with claim 1, it is respectfully submitted that the rejections of claims 2, 3 and 5-12 are in error and should be withdrawn.

IV. Claims 21-25

Claim 21 also stands rejected as allegedly being anticipated by Graviton. Claim 21 includes a limitation directed to a battery that is *secured to the substrate* on which a MEMS sensor and a processing circuit are integrated. It does not appear that Graviton teaches an apparatus that includes a processing circuit and a MEMS sensor integrated onto a first substrate, wherein the apparatus further includes a battery secured to the first substrate.

In response to an earlier office action, it was alleged that the Examiner had not pointed out where Graviton teaches the use of a battery. In the Response to Arguments section of the December 28, 2004 office action, the Examiner correctly responded that indeed one of the citations in the earlier office action, citing page 15, lines 1-32, did indeed contain mention of a battery.

Applicant respectfully submits, however, that the single reference to a battery on page 15 at line 21, which indeed does not even positively recite a battery, is insufficient to create a prima facie case of anticipation of claim 21. In particular, the sole reference to a battery on page 15 is set forth below:

> Preferably, the sensors are relatively small (so as not to perturb the environment which they are sensing), inexpensive, low/power sensors prepared preferably, the sensors may operate for one or more days without user intervention, having minimal need for calibration, zeroing, reagent topping, cleaning and/or battery changing.

(Graviton at p.15, line 17-21).

This single reference implies the possible use of battery power, but does describe what the battery is secured to, and certainly does not suggest that the battery is secured to the first substrate. Moreover, the entire sentence looks like a wish list. The sentence describes desired features but does not describe how or why a device could be generated such that it can "operate for one or more days without user intervention, having minimal need for calibration, zeroing, reagent topping, cleaning and/or battery changing." Further, not a single description of the actual sensor assembly 50 mentions or describes battery use, much less how the battery is physically supported.

Regardless of the enablement or actual teaching of the use of a battery, Graviton clearly does not teach a battery that is secured to the substrate. All that is implied is that battery power may be used. Batteries, however, are typically used to provide power to semiconductor chips *without* being secured to the chips. Accordingly, the mere mention of the battery by Graviton does not, under the law, inherently teach that the battery is secured to the substrate.

Claims 22-25 depend from and incorporate all of the limitations of claim 21. Accordingly, claims 22-25 are patentable over the prior art for at least the same reasons.

V. Claims 26-36

Claim 26 is similar to claim 1, except that claim 26 includes a limitation directed to a non-volatile programmable memory supported by the substrate and coupled to the processing circuit. Claims 27-36 have at least the same limitations as they all depend directly or

indirectly from claim 26.

In the December 28, 2004 Office Action, the Examiner correctly alleged that the Graviton suggests the use of an EEPROM. (Office Action at p.2). However, Graviton does not teach that such an EEPROM is supported by the substrate that includes the processing circuit and the MEMS sensor.

In particular, the discussion of the "flash memory" in Graviton is at pages 4 and 5 thereof:

> In the preferred embodiment, the sensor assembly containing the digital sensor includes a processor. Such a processor may comprise a microprocessor and associated components including memory (RAM, ROM, mass storage, Flash, optical memory, Biomemory, etc.) and supporting components (e.g. clock bus).

This passage clearly does not suggest that the "associated components including memory" would be incorporated onto the same substrate, or even would be supported by the same substrate in which the processing circuit and MEMS sensor would be implemented. For example, it does not seem possible to "support" a mass storage device on an integrated circuit, particularly in March 12, 1999.

Moreover, upon closer review of the specific embodiment of the sensor assembly 50 disclosed at pages 15 and 16 of Graviton, that sensor assembly 50 only specifically discloses the use of a RAM, ROM or mass storage memory. The "Flash" is excluded, as are the optical memory and Biomemory. In particular, in the description of the sensor assembly 50, Graviton teaches that memory may be included in the processor 60 of the sensor assembly 50 or external to it. The memory may be a "memory such as RAM 62, ROM 64 and mass storage 66". (Graviton at p.16, line 26). Obviously, a mass storage device would not be supported by an integrated circuit. Moreover, this description of the sensor assembly 50 does not disclose *any other* programmable, non-volatile memory, much less an EEPROM.

Because Graviton fails to teach a programmably non-volatile memory supported by a substrate that includes both a processing circuit and a MEMS sensor, Graviton fails to teach or suggest all of the limitations of claim 26.

Claims 27-36 depend from and incorporate all of the limitations of claim 26. Accordingly, claims 27-36 are patentable over the prior art for at least the same reasons.

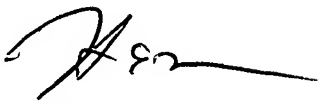
Moreover, claims 27-36 all contain additional limitations that are not taught or disclosed in Graviton. For example, several of those claims recite limitations directed to configuration-type information stored in the nonvolatile programmable memory. Graviton only teaches that the memory "may be utilized to store sensed data as provided from the sensors . . . and may also be utilized to store program information which achieves the functionality described herein." (Graviton at p.16, lines 27-29). To the extent that Graviton impliedly teaches *any* configuration information stored within a sensor assembly, such information may be contained within ROM or RAM, possibly as part of program code. Graviton simply does not teach or suggest that such information is stored on a programmable nonvolatile memory, much less an EEPROM specifically.

As a consequence, at least some of claims 27-36 are patentable over Graviton for reasons independent of those discussed above in connection with claim 26.

VI. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicant has made a patentable contribution to the art. Favorable reconsideration and allowance of this application is, therefore, respectfully requested.

Respectfully submitted,



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